

ay predetermined ratio and increasing the concentration of one of said oxygen-containing gas or said hydrogen containing gas after a reaction begins. --

REMARKS

This application has been carefully reviewed in light of the Office Action dated October 15, 1999. Applicant has amended claims 1, 9 and 16, canceled claims 3, 4, 10, 11, 17 and 18, and added claims 20-28. Reconsideration and favorable action in this case are respectfully requested.

Applicant has amended the specification to correct grammatical errors.

The Examiner has rejected claims 1 – 8 under 35 U.S.C. §103(a) as being unpatentable over U.S. Pat. No. 5,352,620 to Komori et al (hereinafter “Komori”) in view of U.S. Pat. No 4,505,028 to Kobayashi et al (hereinafter “Kobayashi”) and two references to Wolf (collectively the “Wolf references”). Claims 9-11 and 13-15 stand rejected under 35 U.S.C. §102(b) as being anticipated by Kobayashi. The Examiner has further rejected claim 12 under §103(a) as being unpatentable over Kobayashi and has rejected claims 16 – 18 under 35 U.S.C. §103(a) as being unpatentable over Komori. Applicant has reviewed these references in detail and does not believe that they disclose or makes obvious the invention as claimed by the amended claims.

In the Office Action, the Examiner states that Komori teaches a method of fabricating an electrical device in a semiconductor substrate by forming an insulating layer over the semiconductor substrate, forming a silicon containing structure on the insulating layer and forming a conductive structure on the silicon containing structure. The Examiner further states that Komori teaches oxidizing a

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C1 while leaving said conductive structure substantially unoxidized by introducing O₂ and H₂ in an explosive reaction to said insulating layer, said silicon-containing structure and said conductive structure, such that the reaction between said O₂ and H₂ does not increase the pressure in the processing chamber beyond a predetermined level.

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C2 9 (Thrice Amended). A method of oxidizing, in a semiconductor processing chamber, a first feature while leaving a second feature substantially unoxidized, said method comprised of subjecting said first and second features to O₂ and H₂ in an explosive reaction, such that the reaction between said O₂ and H₂ does not increase the pressure in the processing chamber beyond a predetermined level.

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C3 16 (Thrice Amended). A method of fabricating, in a semiconductor processing chamber, a capacitor having a dielectric between a bottom electrode and a top electrode and situated over a semiconductor substrate, said method comprising the steps of:

providing said bottom electrode over said semiconductor substrate;
providing a dielectric material over said bottom electrode; and
subjecting said bottom electrode and said dielectric material to O₂ and H₂ in an explosive reaction, wherein said dielectric material is oxidized and said bottom electrode remains substantially unoxidized, such that the reaction between said O₂ and H₂ does not increase the pressure in the processing chamber beyond a predetermined level.

C4 20 (Twice Amended). The method of claim 1 wherein said oxidizing step comprises the step of oxidizing a portion of said insulating layer and said silicon-containing structure while leaving said conductive structure substantially unoxidized by introducing O₂ and H₂ in an explosive reaction in a portion of a process chamber's total volume, such that reaction between the O₂ and H₂ occurs continuously as the O₂ and H₂ enter the chamber.

C5 22 (Twice Amended). The method of claim 9 and further comprising the step of introducing O₂ and H₂ in an explosive reaction in a portion of a process chamber's total volume, such that reaction between the O₂ and H₂ occurs continuously as the O₂ and H₂ enter the chamber.

C6 24 (Twice Amended). The method of claim 16 and further comprising the step of introducing O₂ and H₂ in an explosive reaction in a portion of a process chamber's total volume, such that reaction between the O₂ and H₂ occurs continuously as the O₂ and H₂ enter the chamber.

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C7 26 (Twice Amended). A method of fabricating an electrical device formed in a semiconductor substrate, said method comprising:
forming an insulating layer over said semiconductor substrate;
forming a silicon-containing structure on said insulating layer;
forming a conductive structure on said silicon-containing structure; and
oxidizing a portion of said insulating layer and said silicon-containing structure while leaving said conductive structure substantially unoxidized by introducing an oxygen-containing gas selected from the group consisting of O₂, N₂O, NO or CO₂ and a separate hydrogen-containing gas to said insulating layer, said silicon-containing structure and said conductive structure, such that an explosive reaction between said the hydrogen-containing gas and the oxygen containing gas does not increase the pressure in the processing chamber beyond a predetermined level.

27 (Twice Amended). The method of claim 26 wherein said oxidizing step comprises the step of oxidizing a portion of said insulating layer and said silicon-containing structure while leaving said conductive structure substantially unoxidized by introducing said oxygen-containing gas and said hydrogen containing gas in a portion of a process chamber's total volume, such that an explosive reaction between the the hydrogen-containing gas and the oxygen containing gas occurs continuously as the the hydrogen-containing gas and the oxygen containing gas enter the chamber.

29 (Amended). The method of claim 1 wherein said oxidizing step comprises the step of oxidizing a portion of said insulating layer and said silicon-containing structure while leaving said conductive structure substantially unoxidized by introducing O₂ and H₂ while the chamber is at a low pressure and increasing the pressure once the reaction begins.

30 (Amended). The method of claim 9 and further comprising the step of introducing O₂ and H₂ while the chamber is at a low pressure and increasing the pressure once the reaction begins.

31 (Amended). The method of claim 16 and further comprising the step of introducing O₂ and H₂ while the chamber is at a low pressure and increasing the pressure once the reaction begins.

32 (Amended). The method of claim 26 wherein said oxidizing step comprises the step of oxidizing a portion of said insulating layer and said silicon-containing structure while leaving said conductive structure substantially unoxidized by introducing said oxygen-containing gas and said hydrogen containing gas while the chamber is at a low pressure and increasing the pressure once the reaction begins.
